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GEOGRAPHICAL RECORD

AMERICAN GEOGRAPHICAL SOCIETY

Presentation of the Cullum Geographical Medal to Professor Frederick H. Newell; Meetings of April. At a monthly meeting of the Society on April 23, at the Engineering Societies' Building, 29 West Thirty-ninth Street, Professor Frederick H. Newell of the University of Illinois, the former Chief Engineer, later Director, and now Consulting Engineer of the U. S. Reclamation Service, was presented with the Cullum Geographical Medal.

President Greenough presided. After he had submitted the names, approved by the Council, of 151 candidates for Fellowship, all of whom were confirmed as Fellows of the Society, the award took place. In presenting the medal President Greenough spoke as follows:

"The practice of introducing water to fertilize the land is as old as history, but its adaptation to existing conditions illustrates the complexities of modern life. In this country it has involved not merely the use of the ordinary flow of our streams but the impounding of their flood waters in vast reservoirs and the diversion at times of their entire currents, together with complicated collateral issues. It is clear that operations of such magnitude and character could only be conducted by Government agency, and accordingly, in 1902, Congress created the Reclamation Service, working in conjunction with the Hydrographic Branch of the U. S. Geological Survey to carry out the national policy for irrigation of the public lands.

"Our guest of the evening was made Chief Engineer and later Director of the Reclamation Service, and chiefly to his labors during the past fifteen years is due the successful prosecution of a vast system of public works unsurpassed in their design and influence.

"In President Roosevelt's annual message in 1901 he asserts that 'the forest and water problems are perhaps the most vital internal questions of the United States.' And his Secretary of the Interior sets forth 'the importance of providing through wise administration for the creation of homes for millions of people upon the arid but fertile public lands.' These quotations outlined the responsibilities with which the Reclamation Service was intrusted and which it has continuously exercised. Their execution comprised not only the building of great engineering structures but also the determination of even more difficult questions of soil, location, and settlement, together with considerations of an economic, legal, and social nature, often most intricate and delicate. Suffice it to say that all difficulties have been triumphantly surmounted, and the Nation is justly proud of the achievements of a Service which has transformed a wilderness into a garden, with provision for its distribution in suitable holdings amongst permanent settlers. With every one of its accomplishments the name of Frederick Haynes Newell is linked as the principal agent, and it is our privilege tonight to pay tribute to his career of devoted and successful labor in behalf of his country.

"And now, Sir, as President of the American Geographical Society, I ask your acceptance of the Cullum Geographical Medal. The inscription on it attempts to epitomize your work and its beneficent results. It reads:

FREDERICK HAYNES NEWELL
ORGANIZER AND DIRECTOR OF THE
UNITED STATES RECLAMATION SERVICE
1907-1914

HE CARRIED WATER FROM A MOUNTAIN WILDERNESS
TO TURN THE WASTE PLACES OF THE DESERT
INTO HOMES FOR FREEMEN

"We trust that this memorial will not be unwelcome, representing, as it does, the appreciation, by our thirty-eight hundred Fellows, alike of your conspicuous creations and of their humanitarian accompaniment."

In accepting the medal Professor Newell said:

"The receipt of this medal gives keen pleasure not merely as a recognition of individual effort, but far more than this as a visible evidence of public appreciation of the notable efficiency of a group of men and women—public servants—united in putting into material form an ideal to which all have been devoted. This ideal, founded on geo-

graphical studies, has been that of creating homes for landless citizens, not by depriving others of their portion, but by utilizing the waste places and the otherwise lost or even destructive forces of nature.

"This ideal, furthermore, has been embodied in an organization—the Reclamation Service—founded in the determination to demonstrate that every one of its employees, whether engineer or clerk, could and would consecrate his life to the highest good of the public. As a result there have been few organizations comparable with this service in mutual respect and unity of action combined with sound business methods. This has been displayed in investing a hundred million dollars of the national wealth in such way that the annual returns measured in dollars are nearly 100 per cent, but where the less tangible but more important profits in better citizenship are immeasurably greater. Bound together by strong ties of true missionary spirit, this Service has persisted in its loyalty to the high ideals and to the men who have aided in making these real.

"On this occasion especial mention should be made of the lifelong devotion to this cause of the late Senator Francis G. Newlands, whose name is inseparably linked with the original law, and of the untiring activity of George H. Maxwell, who sacrificed the best part of his life to make plain to the people the objects and benefits of the Newlands bill: nor could anything have been accomplished had not President Roosevelt thrown his strength into the passage of the measure and toward the initiation of the works which were thus made possible and in whose successful planning and execution scores of devoted public servants, each notable in his or her devotion, have taken part."

After the presentation, Professor Newell addressed the Society on "Home Making in the Arid West." In the course of his illustrated lecture Professor Newell pointed out that over a hundred million dollars has been invested by the Government under the terms of the Newlands bill; already food products to that value are coming back annually, and opportunities made for thousands of homes. The important point is that experience has been had and a demonstration made as to the practicability of operations on a still larger scale to provide more homes and more farms for our population and for the other thousands of men and women who must look for new occupations. Moreover, as shown by this experience, it is possible to do this without additional taxation and without additional public debt, by wisely using the security afforded by the developing land values—the reclaimed lands and their products gradually paying the cost.

The future prosperity and comfort of great numbers of home-makers and an adequate supply of the necessities of life to countless citizens will follow the systematic continuance of the work thus begun of bringing together the landless man and "manless" land and making the union fruitful by the control of the otherwise destructive floods, storing and distributing the waters to the drought-stricken soil, or relieving the fertile swamp areas of the harmful excess.

At an inter-monthly meeting two weeks before, on April 9, at which President Greenough presided, Dr. Toyokichi Iyenaga addressed the Society on "Japan of Today." Dr. Iyenaga's late connection with the Department of Foreign Affairs of Japan and his present position as managing director of the East and West News Bureau fit him peculiarly as an interpreter of his country, and the lecture gave evidence of this qualification in a high degree.

NORTH AMERICA

The Biogeographical Contrast between the Coastal Plain and the Piedmont. The "fall line" has often been discussed in its economic aspect. Contrasted human environment on plateau and coastal plain has also been pointed out. A recent paper by Professor Spencer Trotter (*The Life Features of the Coastal Plain and the Piedmont, Trans. Wagner Free Inst. of Sci.*, Vol. 8, 1917, pp. 33-44, Philadelphia), shows how this line has served as a frontier between the widely differing types of plant and animal life that characterize the Piedmont border and the low coastal lands. The author has sought to discover the underlying cause of such marked diversity in regions that lie side by side. The district about Philadelphia is selected as typical of this biological borderland. At this point, as in many places along the line that divides plateau from plain, the two types of life are in juxtaposition, yet each is well restricted to its respective zone. On the uplands just north and west of the city are found a fauna and a flora belonging, according to Merriam's classification, to the Transition type that separates Boreal and Austral life in North America, while on the lowlands immediately southeast the species of both plants and animals are distinctly Austral in character though far north of where such orders generally occur.

As regards the characteristic animal life of each zone it seems evident that it has become established there simply because of having found its accustomed vegetational

habitat. The point of greatest interest in the author's paper is his explanation of the sharply contrasted flora on opposite sides of the city. This is due not so much to difference in altitude or to the present difference in climate as to past geologic conditions. The controlling influences in the location of the so-called interior hardwood forest that characterizes the Piedmont border were the secular changes of climate that took place over the continent during and after the Glacial Epoch. Alternating periods of cold and warmth account for the present distribution of our northern and transitional forests, the latter being a remnant of the warm-temperate flora which in Miocene time enveloped even the circumpolar area, but which, in periods of lower temperature, found conditions in the north unsuited to its survival except on the borderland of the Piedmont. The principal factor in the development of a truly Austral type of flora along the coast so far north as Philadelphia was the gradual accretion of the coastal plain by the uplifting of the formerly submerged Atlantic seaboard. Upon these recently emerged lands the ground was occupied by plants from the south that found congenial soil in the sands and clays of the new-made territory. Thus the existing flora is due to causes reaching far back into geologic history. Such a perspective is essential in an understanding of the relation of the earth to the organic forms of today; it is necessary not only to consider the influences now operating, but also to recognize the very ancient impress of factors, which, originating in the distant past, have gradually produced our seemingly stable species and varieties of life.

Spring Cold Spells in New England. In Continental Europe a cold or frost spell believed to occur about May 10 is known as the "Ice Saints." A study of the long-period temperature records kept at New Bedford, Mass., between 1813 and 1905 by S. Rodman, Jr., and Thomas R. Rodman was made by the late Waldo E. Forbes, and published since the death of the author. The object of this investigation was to discover evidence for or against the occurrence of such a cold spell in New England (*Annals Astron. Observ. of Harvard College*, Vol. 83, Part I, 1917). The result of Mr. Forbes's analysis of the records may be stated briefly. The theory of the "Ice Saints" at present has little significance. Cold weather as well as hot weather may be expected on May 10, and hot weather as well as cold on May 7 or May 13. "It is nevertheless possible," the author concludes, "that when the pulsations of the weather are better understood, May 10 may prove to be a sort of node and may serve as a point of departure for the study of weather waves."

R. DEC. WARD

The Forests of the Isthmus of Panama. Since 1910 Dr. H. Pittier has been engaged in studying the flora of Panama for the general biological survey organized by the Smithsonian Institution. In the January, 1918, number of the *Journal of Forestry* (pp. 76-84) he briefly describes some of the results of his work in a paper entitled "Our Present Knowledge of the Forest Formations of the Isthmus of Panama." The continental divide separates Panama into two distinct vegetational regions, the rain-forest area of the Atlantic slopes, the savana and savana-forest of the Pacific side. The distinction follows the distribution of the rainfall, which in turn is dependent on the prevailing winds. The dominant northeast trades bring abundant rainfall, well distributed throughout the year, to the Atlantic slopes; the Pacific, on the contrary, is dependent for rain on the south wind, blowing irregularly from May to November, and thus suffers a long dry season. Panama City has an annual rainfall of 70 inches distributed through 180 days; Colon, with a low average for the Atlantic on account of its location in front of the great gap through the divide, has 129 inches per year in 246 days.

The evergreen rain-forest of the Atlantic slopes is characterized by its exceedingly varied composition. Up to the present 900 species of trees, not including shrubs and woody vines, have been listed. Save in the vicinity of roads and settlements the forest is entirely of primary origin. Its most complete development is attained on the alluvial flats of Darien. Such woodland as exists on the Pacific slopes west of the Panama Canal is best described as savana-forest, and it is more properly studied with the grass formations. East of the canal, that is in Darien, where rainfall becomes successively more abundant and better distributed, the forest changes to the type described by Schimper as monsoon forest. Its most distinctive tree is the *cuipe*, which here reaches its most northerly limit. It is unusually abundant and gregarious on the low hills of Darien in the Canal Zone. Eastward and southward the forest passes into the heavy rain-forest of the intensely humid Pacific coast of Colombia.

Little work as yet has been done on the forests of high altitudes. In the western part of the Republic of Panama where high altitudes are attained the evergreen oak becomes dominant above 8,000 feet, from which elevation it forms extensive groves up to the limit of the timber line.

The commercial prospects of the timber lands of Panama have been shortly described in an article by Forbes Lindsay (*Bull. Pan American Union*, Vol. 36, 1913, pp. 499-510).

EUROPE

Franco-Italian and Franco-Swiss Ports in France. Though Italy is developing the hydro-electric resources of her Alpine terrains, her industries are still largely dependent on imported coal. The pre-war import of coal amounted to some 10,000,000 tons, of which about 90 per cent came from the United Kingdom. To maintain the supply by the ordinary long sea route has become increasingly difficult, and relief has been sought in the establishment of a new route via the Gironde ports, whereby the sea journey has been reduced by more than three-quarters, and overland. A good deal of the diverted traffic is discharged at Bordeaux, but, to facilitate handling, a new modern port has been created out of the old and decaying harbor of Blaye on the right shore of the estuary. All transport equipment has been supplied by Italy, the dockers are Italians or prisoners of war, the French language has been replaced by Italian: to all intents Blaye has become an Italian town (Auguste Pawlowski: Blaye, Port Franco-Italien, *La Nature*, Jan. 12, 1918).

French hospitality has been extended to the neutral as well as to the ally. Her principal outlets, Hamburg and Antwerp, lost, Switzerland has turned for help to France. The port of Cette, 325 miles by rail from Geneva, has been put at her disposal. Unlike the state of affairs at Blaye imports in transit at Cette embrace almost the entire category of merchandise, except coal, which Switzerland gets from Germany. Food-stuffs naturally take first place, with wheat the chief single item (*idem*: Cette, Port Franco-Suisse, *La Nature*, Feb. 9, 1918; see also *Suppl. to Commerce Repts. No. 5a*, March 12, 1918).

The Internal Migrations Underlying the Present Distribution of the Serbo-Croats. Is race the great nation-making factor? Does ethnography supply the solution of the Balkan problem? This factor is at least one of profound importance—and profound difficulty. The complications of Balkan ethnography are apparent enough on the ordinary ethnographic map, but they become far more so when examined in such detail as is shown by Professor Jovan Cvijić in a recent paper on the racial migrations within the Balkan Peninsula (Les mouvements métanastasiques dans la péninsule des Balkans, with map showing the migration currents, 1:3,000,000, *Le Monde Slave*, July 1, 1917, Paris).

The Balkans have known no rest. Ignoring the racial diversity produced by movements of earlier epochs we still find great modifications arising from the migrations that have taken place continuously in the peninsula from the Turkish invasion of the fourteenth century to the present day. On these movements historic documents shed insufficient light. They recognize such great mass movements as that which towards the end of the seventeenth century carried 37,000 families from Kossovo beyond the Danube, but the smaller migrations involving perhaps only a few families are naturally unrecorded, though their succession has been continuous. But they live in tradition, and they may be read in customs, dialects, folk-names and even in written form in carefully preserved "family trees."

During the last twenty years Professor Cvijić and his collaborators have carried on a systematic anthropogeographic-ethnographic inquiry throughout the western and central parts of the peninsula, with the result that today the origin of the greater number of families in these regions is known and charted (the chart remains in a town of invaded Serbia).

The migrations whose courses have been thus determined influenced a great area, but most actively affected Serbia. They may be grouped into four main currents. The most powerful, denoted as Dinaric, carried peoples of the Syenitza region (between the Lim and Ibar Rivers) and of Bosnia and Herzegovina north, northwest, and west. One of the main branches led to a new peopling of the fertile area, the Shumadiya, between the Drina and Morava. This forest-clad country, isolated from Constantinople, always enjoyed comparative freedom and was the first portion of the peninsula to be freed from the Turkish yoke. The same migration continued across the swampy Morava valley and established itself in the mountainous districts of eastern Serbia. The direction, transverse rather than longitudinal along the great highways, is characteristic. Another branch crossed the Save and dispersed in Croatia-Slavonia. In its western and northern spread it even attained the confines of Laibach (Carniola) and Vienna. Today descendants of its members are said to form half the population of Croatia-Slavonia. A third, less important branch, following the transverse cols of the Dinaric Alps, reached the Adriatic seaboard, where their settlement was strongly encouraged by Venice, seeking to strengthen the Christian bulwarks against Islam.

Farther east originated the Kossovo movement, so designated from the principal area where it arose. Penetrating to the Morava valley again by transverse routes, the stream worked its way north, occupying successive portions of the valley. From western Macedonia and the Vardar a third great current also moved north, mingling with the Kossovo

current in the Morava valley. The fourth current, consisting of this combined flow, reinforced by the earlier inhabitants, proceeded across the Save and the Danube to settle in eastern Slavonia and the Banat. The total displacement effected is very great. In Serbia the old population forms only an insignificant part of the population of today. But at the same time overlapping and a certain degree of mingling must everywhere have contributed to ethnic confusion.

AFRICA

Commandant Tilho's Explorations in the Tibesti Region, 1912-17. The greatest blank on the current map of Africa is comprised by the Libyan Desert and its southwestern border. According to Banse (*Der gegenwärtige Stand der Erforschung der Libyschen Wüste und Tibestis*, with map in 1:7,500,000, *Petermanns Mitt.*, Vol. 60, I, 1914) the extent of unknown desert, where never a European has laid foot, occupies an area not far short of 500,000 square miles. Besides the desert is the more elevated region extending northwest from Darfur and including Tibesti and the Borku plain to the west. For knowledge of Tibesti our sole authority up to today has been Nachtigal, who also visited Borku. During the first decade of this century French penetration into the territory east of Lake Chad was followed by military excursions into Borku and Ennedi (see F. R. Cana: *Problems in Exploration: Africa*, with map in 1:20,000,000, *Geogr. Journ.*, Vol. 38, 1911). Since the effective occupation of Wadai and Kanem that penetration has been continued, and now, in the report of Commandant Jean Tilho, we are presented with the geographical first fruits of its later development (*Exploration du Commandant Tilho en Afrique centrale: Borkou, Ennedi, Tibesti, Dar-Four, 1912-1917, La Géographie*, Vol. 31, 1916-17, No. 6-8, pp. 407-417).

In 1912 Tilho was appointed to Kanem, the country north and east of Lake Chad, with which lake his name is associated for his geographical labors during the mission of 1906-09 (see *Geogr. Rev.*, Vol. 1, 1916, p. 237). A vigorous campaign against the Senussi enabled him at the beginning of 1914 to start on the work of organizing and pacifying the territory described as Borku-Ennedi. Ennedi is the broken mountainous area 10,000 to 13,500 square miles in extent uniting Tibesti with Darfur. The greatest elevations do not exceed 5,000 feet. It is the home of small groups of restless, unsubmissive tribes. Borku is a confused mass of sandstone rocks more or less buried in sand. About half its population of 6,000 to 8,000 is entirely sedentary and lives on dates, a little millet and corn, and the milk of the small flocks of goats. Erdi near the frontier is a part of the Libyan Desert: it has no oases and date gardens but is the natural refuge of irreducible tribes—nomads of astonishing endurance and audacity. Not only do they prey on adjacent caravan routes, but they cross 400 miles of desert to raid the camels of Dongola and Kordofan.

While making his rounds of these regions Tilho was able to settle one of the last great hydrographic mysteries of Africa—the supposed relation between Lake Chad and the Nile. His earlier investigations of Lake Chad and the Bahr-el-Ghazal channel which connects with it (not to be confused with the Bahr-el-Ghazal of the Nile system) had favored the hypothesis of a connection between the lake and the great river (*Documents Scientifiques de la Mission-Tilho*, Vol. 2, pp. 601-606, Paris, 1911). Now, however, this supposition has been disproved. Chad is a closed basin, and the present lake with the lakes of Wanyanga to the northeast are fragments of a former Central African system of lake and marsh that must at one time have covered an area as large as France.

Later reconnaissance in Tibesti yielded a rich harvest of geographical results. To the complete reversal of our previous ideas, instead of a simple mountain ridge running northwest-southeast Tibesti is resolved into four or perhaps even five chains radiating from south to west-northwest, north, and northeast—a sort of fan pivoted on the massif of Kussi. The volcano of Emi-Kussi presents several features of interest. The volcano attains an altitude of 11,100 feet. Its crater is of extraordinary dimensions, the axes being 5 and 7.5 miles respectively and the depth 130 feet. Within are two ancient vents; the orifice of the larger measures 1.5 to 1.8 miles. Covering over 120 acres of the crater floor is a deposit of natron, apparently of considerable depth in the center. This deposit with the salt of the Wanyanga lakes and indications of copper in the mountain zone suggest that the desert is not devoid of economic possibilities.

On the economic future of the territory lately under his control Commandant Tilho has an emphatic word to say; a more intensive railroad policy in collaboration with England must be prosecuted in the Sudanese zone. The first line to be built should be a great Franco-English road from Dakar, the port at Cape Verde, to Port Sudan on the Red Sea; today only the terminal portions of such a line exist. The line should follow the axis of the zone free from the tsetse fly, where cattle raising is practicable and to which products of the desert can be brought by camel, where the cultivation of millet,

cotton, and groundnuts flourishes and where there is in general a considerable native population. A railway would further permit relief to regions periodically famine-stricken. It is variously estimated that one-half to three-quarters of the inhabitants of northern Wadai died in the famine of 1914.

Among the scientific achievements of Commandant Tilho's five years' labors first place must be given to the cartographic results. His surveys embrace a band of territory previously unknown extending over 1,100 miles from northwest to southeast from the center of Tibesti to the neighborhood of El Fasher in Darfur. A large piece of the last great blank on the map of Africa is thus filled in. And this mapping, with its establishment of the vital points in the desert—the wells and pasturages—will be of supreme value both for military and civil ends.

A sketch map in 1:12,500,000 showing Commandant Tilho's journeys accompanies the account of his work published in the April, 1918, number of the *Geographical Journal*.

Rubber Cultivation in East Africa. Between the two great southern continents interrelations have been and are comparatively feeble. The most obvious connection between them is the debt of South American agriculture and more especially that of Brazil to African labor. But on the other side something must be placed to the credit of Brazil. Many of the cultivated plants that play so important a part in African economy that their foreign origin is forgotten came from the west. Manioc and maize now feed a great part of Africa: tobacco, the pineapple, the tomato, and the sweet potato are also widespread. These and others were brought from Brazil by the Portuguese in the sixteenth century. But with a list of the early Portuguese introductions the tale is not told. Recently introduced Brazilian products are today figuring among the economic resources of Central Africa. Ceará rubber is a striking example. This species of rubber-producing plant (*Manihot Glaziovii*, of the same genus as the manioc, *Manihot utilisima*) does not belong to the rain-forest, as does the better-known *Hevea brasiliensis*, but flourishes in such a semi-arid, bush country as the north-eastern corner of Brazil. Much of East Africa is occupied by country of a similar type in which the Ceará rubber is readily acclimated. All along the railroad from Dar-es-Salaam to Ujiji plantations of this tree are said to form a very noticeable feature of the landscape, while in the earlier developed eastern section, from the coast to Morogoro, the plantations are almost continuous (*Board of Trade Journ.*, Dec., 1917, p. 572). The Ceará species is short-lived and furnishes a rubber inferior to that of the *Hevea* (Pará rubber), but compensation lies in its hardihood and quick growth. It promises to be an ideal cultivation for lands formerly regarded as waste.

The Meteorological Station on the Island of Mauritius. The meteorological station on the island of Mauritius, in the Mascarene group east of Madagascar, is making some highly valuable contributions to our knowledge of meteorological conditions south of the equator. The Royal Alfred Observatory ($20^{\circ} 6' S.$ and $57^{\circ} 33' E.$) maintains a central station with many sub-stations. The island, 36 miles long by 23 wide, is divided into 13 districts coincident with the 13 principal river basins. Each district contains several observation places. The interior of the island is a rough mass of basaltic rock reaching heights of 3,000 feet. The relief creates local diversities of climate within the general oceanic habitus.

A secondary station which reports to the main station by cable is maintained 375 miles eastward on the island of Rodriguez. Vessels passing on their way to Indian ports also report their observations, thus making possible the correlation of data from a wide area.

The monthly bulletin of the observatory includes among other things a report on "the state of the sea at stations round the coast, to estimate the direction of the sea wave in connection with the study of cyclonic storms and extra-tropical gales." These waves are conspicuous features during the passage of a storm. At times they are very destructive, running far inland over the flat valley floors. They would be more destructive were it not for the coral reefs that surround the shore. The location of the storm center is determined by noting the direction and length of these waves.

Mauritius, like the West Indies and the Philippines, lies in the path of tropical cyclones, near the point where the disturbances turn southward away from the equator. Along the east coast of Africa these storms generally occur in the months of January, February, and March. The inhabitants of Mauritius have learned to expect them in February, near the close of what they call winter, though it is so called simply because it is the stormy season, for it is the warmest part of the year.

The character and movement of cyclonic disturbances are recorded in each monthly bulletin of the observatory. The tracks of some storms are mapped. The tropical cyclones often pass north of Mauritius and double back around Madagascar, going off toward the southeast. In December, 1916, two storms followed this course, sweeping

through the Mozambique Channel. One noted in January, 1917, crossed the northern end of Madagascar on the 26th, turned south through the channel on the 27th, and passed over southern Madagascar on the 28th.

Strange to say, extra-tropical disturbances are felt in spite of nearness to the equator. In November, 1916, a series of shallow highs and lows was observed, with an interval of about five days between successive maxima.

Incomplete records have been kept at Mauritius since 1875, while rather detailed descriptions of the hurricanes are contained in books of travel and in histories of the island. The "History of Mauritius" by Charles Grant (London, 1801) contains many such accounts, some of which date back to 1740.

Since January 1, 1916, the metric system has been used in all records made by this observatory. (For data on the station see the monthly *Results of Magnetical, Meteorological, and Seismological Observations* and the *Annual Reports of the Director of the Royal Alfred Observatory*.)

EDUCATIONAL GEOGRAPHY

Economic Geography in the High School. To the discussion of geography's place in present-day education Prof. J. Paul Goode contributes an article on economic geography in the February 23 issue of *School and Society* (A Course in Economic Geography, pp. 216-222). After briefly tracing the influence of such men as Guyot, Chisholm, and Cyrus C. Adams in the development of the science in this country the author presents what he considers to be the essential courses in high school geography. He advocates three units: "Elements of Geography," as a ground work for all later study; "Economic Geography," for the senior high school; and "Commercial Countries," as a regional treatment with which to complete the work. The first unit the author would require of every student. Of largest present interest Professor Goode finds the course in Economic Geography. In this study he would consider the "Commodities of Commerce" and the "Geography of Trade," attempting to show the geographic influences operating behind the scenery of international relations. Atlases, maps, pictures, lantern slides, and moving-picture films should be used as aids, while current periodicals, the *U. S. Commerce Reports*, special studies made by consuls and trade experts, together with the daily papers may be drawn upon to supplement the literature of formal textbooks for student as well as teacher.

In this scheme economic geography is emphasized, as being pedagogically the most telling phase of geography. A knowledge of human activities as influenced by physical environment is imparted in the Elements of Geography course. As to regional geography, what better way of becoming acquainted with the countries and people of the world, than considering them in connection with the things they contribute to the commerce of mankind? If care is exercised to see that geographic principles are stressed this should result in no lowering of standards.

To fully carry out this program would require at least three half-year courses. This is more than is accorded to geography in most high schools, but not more than the subject merits. The vastly wider field, politically and commercially, into which the United States is entering makes this an opportune time to secure for geography the recognition which it should have in American education. Giving the subject an economic trend should greatly strengthen its appeal to a public accustomed to think largely in terms of commercial expansion.

GEOGRAPHICAL NEWS

GRANTS have recently been made by the American Association for the Advancement of Science to Professor A. E. Douglass, of the University of Arizona at Tucson, to investigate the length of record of tree growth of the sequoias from about 2,200 to 3,000 years ago; to Professor Herman L. Fairchild, of the University of Rochester, for the continuation and completion of his studies on the post-glacial continental uplift in New England and the Maritime Provinces of Canada; and to Prof. S. D. Townley, of Leland Stanford Junior University, for the investigation of earthquake phenomena.

THE Museum Association and the Free Public Library of Newark, N. J., are holding an exhibition illustrating the resources and the social conditions of Colombia. The exhibition comprises representative samples of material now exported or imported from Colombia; notes on business methods suiting the conditions of South American trade; maps, political, commercial, geographical, and agricultural; pictures of buildings, city streets, factories, railway stations, docks, school houses, plantations, etc.; books and the newspapers and periodicals of the country; and samples of its products of all kinds,

including examples of the arts of the common people, home weaving, basket making, pottery, metal work, wood carving, etc., both ancient and modern. The exhibition will continue to October 31, except for a probable interruption in July and August.

PERSONAL

DR. L. A. BAUER of the Carnegie Institution on May 11 addressed the Philosophical Society of Washington on "Corresponding Changes in the Earth's Magnetic State and in Solar Activity, 1888-1916."

PROFESSOR W. M. DAVIS read a paper on "Recent Coast Survey Charts of the Philippines and Their Bearing on the Coral Reef Problem" at the April meeting of the American Academy of Arts and Sciences in Boston and at the annual meeting of the National Academy of Science in Washington.

DR. H. J. FLEURE, who has filled the professorship of zoölogy at the University College of Wales at Aberystwyth and has also acted as lecturer in geography, will henceforth occupy the chair of geography and anthropology recently created at the institution through an endowment of £10,500 by an anonymous donor. Professor Fleure contributed an article on "The Racial History of the British People" to the *March Review*.

MR. PHILIP A. MEANS, whose note in the December, 1917, *Review* on the Guarani invasions of the Inca Empire will be recalled, is the author of a "History of the Spanish Conquest of Yucatan and of the Itzas" recently published by the Peabody Museum of American Archaeology and Ethnology of Harvard University.

PROFESSOR MARSHALL H. SAVILLE of the Museum of the American Indian, Heye Foundation, of New York, is the author of "A Letter of Pedro de Alvarado Relating to his Expedition to Ecuador" in 1534, presented in facsimile and accompanied by a translation, notes, and bibliography, which has recently been published by the Museum.